

Serial No.: 10/560,863

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**Amendments to the Claims**

Please amend claims 1 and 15-16 as indicated.

1. (Currently Amended) Projection objective comprising:  
a combination of lenses comprising a front group of lenses and a rear group of lenses that are placed on either side of a diaphragm and are intended to transmit a divergent light beam to a flat screen, and characterized in that it includes  
at least one hyperbolically shaped mirror, called a hyperbolic mirror, oriented so as to receive, on its convex face, the light coming from the said front group of lenses and to transmit the said beam to the said screen, wherein an axis of the hyperbolic mirror that passes through a foci of the hyperbolic mirror, coincides with an optical axis of the combination of lenses.
2. (Previously Presented) Objective according to Claim 1, wherein a first focus of the said hyperbolically shaped mirror is positioned in the region, called the pupil region, defined by the image of the said diaphragm by the said front group of lenses.
3. (Previously Presented) Objective according to Claim 1, wherein at least one of the said rear group of lenses and the said front group of lenses includes at least one geometric-distortion correcting optic that has a conic shape.
4. (Previously Presented) Objective according to Claim 3, wherein the said geometric-distortion correcting optic is located in the rear group of lenses and has a hyperbolic shape.

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5. (Previously Presented) Objective according to Claim 4, wherein the said geometric-distortion correcting optic is located in that part of the said rear group of lenses furthest away from the said diaphragm.

6. (Previously Presented) Objective according to Claim 1, wherein it includes at least one meniscus located in that part of the said front group or of the said rear group that is closest to the said diaphragm, the said meniscus or menisci being designed to correct the astigmatism defects induced by the said hyperbolic mirror.

7. (Previously Presented) Objective according to Claim 1, wherein it uses a peripheral field of the object plane and in that the said hyperbolic mirror is located entirely on one side of a plane passing through the axis of symmetry of the hyperbola so as to fold the beam without the objective casting a shadow on the image.

8. (Previously Presented) Objective according to Claim 1, wherein it includes a first return mirror that is placed near the front group of lenses in a first direction that corresponds to the direction of the beam transmitted by the lens, and reflects the said beam in a second direction, the said hyperbolically shaped mirror being located along the second direction and being oriented in order to receive the beam reflected by the said first return mirror.

9. (Previously Presented) Objective according to Claim 8, wherein the second direction makes an angle of less than 60° with the said first direction.

10. (Previously Presented) Objective according to claim 1, wherein it includes two menisci located on either side of the said diaphragm, the concave parts of which are oriented towards the said diaphragm.

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11. (Previously Presented) Objective according to Claim 1, wherein the said diaphragm lies in the focal plane of the rear group of lenses.

12. (Previously Presented) Objective according to Claim 11, wherein it includes a positive lens located between one of the said meniscuses belonging to the said front group of lenses and the said hyperbolic mirror.

13. (Previously Presented) Projection apparatus applying the objective according to Claim 1, wherein it includes a display located on one side of the optical axis of this rear group of lenses and making it possible to transmit a modulated light beam to a region of the rear group of lenses that is located on one side of the axis of the said rear group of lenses.

14. (Previously Presented) Projection apparatus according to Claim 13, wherein it is a backprojection apparatus and includes at least one second return mirror that receives the light reflected by the said hyperbolic mirror and reflects it onto the rear face of the screen of the said back projection apparatus.

15. (Currently Amended) Projection apparatus according to Claim 14, the said second return mirror makes a zero angle with the plane of the said screen.

16. (Currently Amended) Projection apparatus according to Claim 14, wherein the said second return mirror lies in the same plane as a third return mirror placed near the front group of lenses along a first direction corresponding to the direction of the beam transmitted by the lens and reflecting the said beam in a second direction, the hyperbolically shaped mirror being located along the second direction and being oriented in order to receive the beam reflected by the said third return mirror.